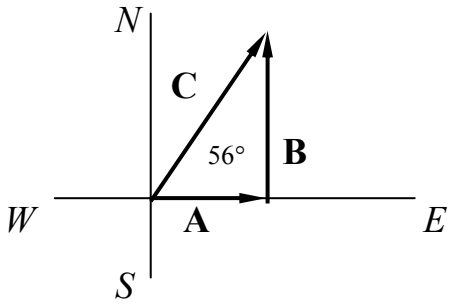
Home work #1	Appendix C and Ch 4: 4.1-4.2	Fri, 01/13/06

Appendix C

E1:



scale: —— = 10 m

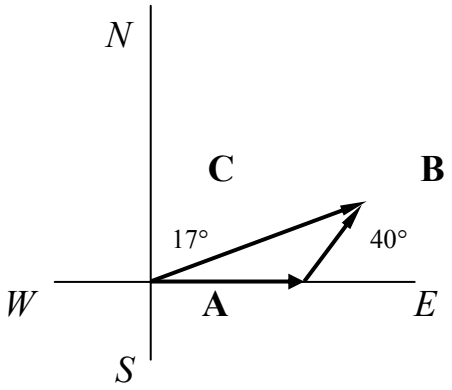
vector **A** = 20 m, East

vector **B** = 30 m, North

vector **C** = **A** + **B**

vector **C** = 36 m at 56° North of East

E3:



scale: — = 1 m/s^2

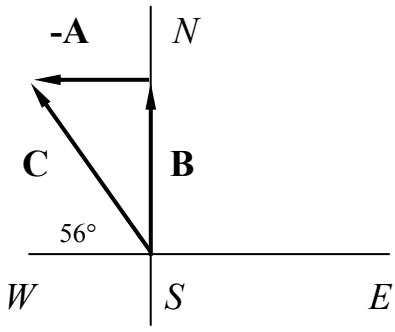
vector **A** = 4 m/s^2 due East

vector **B** = 3 m/s^2 at 40° North of East

vector **C** = **A** + **B**

vector **C** = 6.6 m/s^2 at ~17° North of East

E5:



scale: —— = 10 m

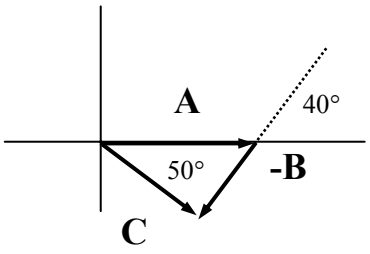
vector **A** = - **A** from E1, 20 m, West

vector **B** = 30 m, North

vector **C** = **B** – **A** = **B** + **(-A)**

vector **C** = 36 m at 56° North of West

E8:



vector **C** = **A** – **B** = **A** +(-**B**)

vector **C** = 3.6 m/s^2 at ~50° South of East

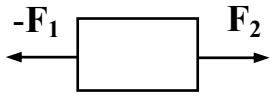
Ch. 4:

Q7:

The more massive object will have a smaller acceleration because $a = F/m$

Q9:

No. If $\boldsymbol{F_1} = \boldsymbol{F_2}$, $F_1 - F_2 = 0$, $a = F/m = 0/m = 0$



Q10:

Yes, it is possible. If the total force acting on the object is equal zero, this object can be at the rest or moves without acceleration.

E1:

$a = F/m = (40\ N)/(5\ kg) = 8\ m/s^2$

E7:

$\boldsymbol{F}_{total} = \boldsymbol{F}_1 - \boldsymbol{F}_2 = F_1 - F_2 = 50\ N - 30\ N = 20\ N,$
$a = (F_{tota})/m,$ hence $m = (F_{total})/a = (20\ N)/(4\ m/s^2) = 5\ kg$

E8:

$\boldsymbol{F}_{total} = \boldsymbol{F}_1 + \boldsymbol{F}_2 + \boldsymbol{F}_3 = F_1 + F_2 - F_3 = 5\ N + 25\ N - 10\ N = 20\ N$
$a = (F_{total})/m = (20\ N)/(5\ kg) = 4\ m/s^2$